

Notice of Allowability

Application No.

09/886,598

Examiner

John M. Villecco

Applicant(s)

HUA, PAUL

Art Unit

2612

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☐ This communication is responsive to _____.
2. ☒ The allowed claim(s) is/are 1-23.
3. ☒ The drawings filed on 21 June 2001 are accepted by the Examiner.
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
 6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).**
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☒ Information Disclosure Statements (PTO-1449 or PTO/SB/08),
Paper No./Mail Date 6/10/2002
4. ☐ Examiner's Comment Regarding Requirement for Deposit
of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413),
Paper No./Mail Date _____.
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____.

EXAMINER'S AMENDMENT

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it **MUST** be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with John Murtaugh on October 7, 2004. Mr. Murtaugh was informed that the case was in condition for allowance except for the abstract. The examiner gave Mr. Murtaugh the opportunity to correct the abstract. Mr. Murtaugh faxed a new abstract to the examiner on October 8, 2004. The new abstract will be entered as an examiner's amendment.

2. The application has been amended as follows:

In the abstract:

Please cancel the entire previous abstract and add the following new abstract.

An output signal of an image sensor pixel, which substantially avoids fixed pattern noise contributed by the readout circuitry, is provided. The apparatus, which is used to provide an output signal that is a function of the difference between two sample signals V_{S1} and V_{S2} , includes first and second capacitor elements that are coupled together at a common terminal. A reference voltage V_{REF} is first applied to the capacitor elements, then a first sample signal V_{S1} from the image sensor pixel is applied to the first capacitor element producing a charge that is

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transferred to the second capacitor element. A second sample signal V_{S2} from the image sensor pixel is then applied to the first capacitor element producing a charge that is also transferred to the first capacitor element such that $V_O = V_{S2} - V_{S1} + V_{REF}$.

EXAMINER'S STATEMENT OF REASONS FOR ALLOWANCE

3. **Claims 1-23 are allowed.**

4. The following is an examiner's statement of reasons for allowance:

5. Regarding *claims 1 and 4*, the primary reason for allowance is that the prior art fails to teach or reasonably suggest transferring charge from the second capacitor element to the first capacitor element so as to provide an output signal that is a function of the difference between the second sample signal and the first sample signal.

6. As for *claim 7*, the primary reason for allowance is that the prior art fails to teach or reasonably suggest the specific method of operating the readout circuitry as described in the claim language.

7. With regard to the *claim 13*, the primary reason for allowance is that the prior art fails to teach or reasonably suggest the specific arrangement of the readout circuitry as described in the claim language.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue

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fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks
Washington, D.C. 20231

or faxed to:

(703) 872-9306 (For either formal or informal communications intended for entry. For informal or draft communications, please label **"PROPOSED"** or **"DRAFT"**)

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington VA, Sixth Floor (Receptionist).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to John M. Villecco whose telephone number is (703) 305-1460. The examiner can normally be reached on Monday-Thursday.

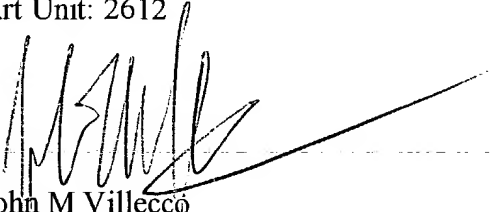
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wendy Garber can be reached on (703) 305-4929. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


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John M Villecco
October 7, 2004



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